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IN PURSUIT OF AUTOMATED COMMAND AND CONTROL: THE ARMY vs.
OSD

CORE COURSE 3 RESEARCH PAPER

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The US Army has been trying to automate its tactical command and control process since the beginning of the last decade.[1] Pursuit of this goal took the form of an acquisition program for the development and fielding of an integrated hardware/software system designed to meet the requirements of deployed tactical units. Known as the Maneuver Control System, or MCS, this automated system, has yet to be fielded in any useful form to Army units after over 10 years of developmental effort. This paper illuminates the Department of Defense (DOD) acquisition process as it applies to MCS and shows how the interests of DOD officials became arrayed against Army intentions to develop and field the MCS system. Allison's "bureaucratic politics" model will guide the analysis and illustrate some reasons for the fielding delay.

The Maneuver Control System is a software application designed to automate the command and control information process for the force level commander and his staff both in a tactical environment and in garrison.[2] The software is designed to run on Army standard computer hardware, itself in a parallel development effort. MCS is envisioned to gather, correlate and focus battlefield information from the five functional areas indigenous to Army operations. These functional areas are; Maneuver, Fire Support, Air Defense, Intelligence, and Combat Service Support or logistics. Tactical communications links provide the connectivity between MCS computers allowing them to function in a network.[3]

As with any acquisition program specific steps are required to bring a system from a concept to a working piece of hardware. First, the concept must

be refined into a precise document describing the system requirements. This requirements document, after gaining departmental approval, must then be expanded into a technical specification, which, after solicitation, can be translated into a development contract. Once prototypes are produced, a detailed series of tests are conducted to determine if the capabilities delivered meet the system requirements. If the correlation between capabilities delivered and desired requirements is satisfactory, a decision is made authorizing production in preparation to field the system.[4]

From it's beginning, the MCS program has undergone an evolutionary development process. The initial requirement for the system was approved in 1982.[5] Full Mil-Spec hardware and compatible software had been developed and fielded on a very limited basis in Europe in the early 1980's.[6] The rudimentary capabilities of this first iteration of MCS were improved as technology improved. Advancing computer technology and evolving requirements precipitated the development of software upgrades that were fielded on more capable, semi-commercial hardware in the late 1980's.[7] By 1990, virtually all active Army divisions had been issued this second iteration of MCS.

It is important to note that the capabilities fielded with the second iteration were still considered crude. Many units, after their appetites for automated command and control were whetted by MCS, grew impatient when presented with what the growing personal computer industry had available. In some cases, these units began to use local funds to purchase and experiment with

commercial offerings. The Army recognized the dangers inherent in disparate automated systems incapable of sharing information on a large scale.

The Army strategy had always been to replace the original MCS version (Block 1) and the second fielded version (Block 2) with a much more capable system known as Block 3. Software for this version would run on new Army standard computer hardware under separate development.[8] Although the need to get version 3 fielded was pressing, the development time was now becoming an issue. Users had been promised a fully functional MCS for almost 10 years. Unfortunately, as the complexity of the software grew, the system's development slowed. Perhaps for this reason, the Office of the Secretary of Defense (OSD) assumed oversight of the MCS program from the Army in July 1992.[9]

An already complex acquisition process gains complexity by an order of magnitude when direct oversight of a system's development is elevated from the originating service to OSD itself. According to DOD Instruction 5000.2, OSD oversight becomes mandatory when a program exceeds specific total dollar amounts for both research & development and acquisition.[10] Even though MCS funding does not approach those specified dollar amounts, the program was nevertheless elevated to OSD oversight by order of the Defense Acquisition Executive. Despite the developmental teething problems MCS was already experiencing, and the resultant user frustration, this action enmeshed the MCS program in a bureaucratic paper chase which continues apace.

Although no additional paperwork is generated on the varied aspects of the

systems' development by the addition of OSD oversight, the bureaucracy of the OSD staff now had the license to drape their interpretations of regulation over every aspect of the acquisition process. Pertaining to MCS, the interested offices of OSD include the Defense Acquisition Executive (DAE), the offices of the Assistant Secretary of Defense (ASD) for C^3I, for Developmental and Operational Testing & Evaluation (DOT&E) and for Program Analysis & Evaluation (PA&E). As the following will show, the principal OSD players were influenced by the dictates of their positions.

The driving force behind the interest in MCS in each of these offices was the portion of defense acquisition directives and instructions (DODD 5000.1 and DODI 5000.2 and 5000.2-M) which defined the offices specific areas of responsibility. These offices, armed with the pertinent regulatory mandates and guidelines, proceeded to vivisect the MCS program. The irony of this process is that compliance with the letter of regulation was the holy grail. The Army's need for the system was apparently not relevant. Equally important (and also not considered relevant by OSD) was the fact that the regulations are written for the acquisition of hardware, not software systems such as MCS. The argument that procedures that make sense for the acquisition of hardware may not universally apply for software was not accepted by OSD.[11]

OSD oversight came to MCS well into the program's development cycle. By 1992, operational prototypes had been produced and plans were underway to begin technical and operational testing.[12] In the process of examining the Army's plan to operationally test MCS, OSD effectively questioned the Army's

requirement for the system itself. OASD-DOT&E returned the Army approved

Test and Evaluation Master Plan (TEMP) without approval. Discussions

between the author and the responsible officials revealed that according to

OSD, the MCS requirements document did not contain the level of specificity

mandated in DODI 5000.2.

DODI 5000.2 stipulates that requirements documents contain quantifiable,

measurable performance data.[13] Easily done for hardware systems, this

requirement is exceedingly difficult, if not impossible, when the requirements

describe software designed to automate the command and control process.

The Army was in a tough position: Quantify the improvements that

automation will make to a subjective process or never gain necessary OSD

approval of the MCS TEMP. Without an OSD approved TEMP, the Army could

not conduct any operational testing of MCS. Operational testing is a

mandatory step leading to a decision to field. Without such a test, the Army

could not field the system.[14]

While the Army tried to determine just how to quantify the MCS

requirements, OSD put the requirement to do so in writing in a 6 April 1993

Acquisition Decision Memorandum.[15] Further progress toward eventual MCS

fielding was now delayed until MCS requirements documentation met with

OSD approval.

OASD-PA&E wedged their influence into the MCS acquisition process by

issuing a directive to perform a full Cost and Operational Effectiveness

Analysis (COEA) for MCS.[16] The purpose of a COEA is to compare and

evaluate alternative approaches and costs incurred to meet system requirements. For programs under OSD oversight, COEA's are required prior to a decision point in a program's development known as Milestone 1. The COEA must be updated if required, at each subsequent decision Milestone.[17]

The COEA assists in the Milestone 1 decision to proceed to the demonstration and validation phase of a system's development. The Army had never done a COEA for MCS prior to it's Milestone 1 decision. The conduct of an informal costing analysis performed during the Block 2 development was considered insufficient by OSD.[18] The enormity of the COEA directive lay in the fact that MCS was in the throws of preparing for a Milestone 3 or production decision for Block 3 software. Without any apparent regard for the development status of the system, OSD told the Army to conduct an analysis which, if unfavorable, had the potential to obviate all the work and money spent on MCS for the past ten years. Additionally, OSD made completion of the analysis a pre-requisite before a development contract for follow-on (Block 4) capabilities could be let.[19] Without any recourse, the Army initiated a COEA for MCS in Sept 1992.[20] Although completion of the analysis was set for September 93, to date it has not been completed.

The offices within OSD exercising influence over the progress of MCS were doing so to meet their own ends. As an Army staff officer involved in this process I frequently found representatives from one OSD office totally ignorant of what another was pursuing relative to MCS. As the Army tried to continue MCS development, it was forced to respond to disparate offices of OSD to alter

or produce documentation they and their regulations required.

The degree of influence exercised by these offices was effectively the same. Any problems an office raised regarding their piece of the required documentation would slow or stop development. The combined result of the actions of OSD finds the Army continuing to develop the improvements to MCS but progress has been slowed. Planned operational testing is now optimistically projected to occur in 1995, assuming, of course, OSD approves the Army TEMP.[21] Should the operational test prove successful, practical estimates place initial fielding in early 1996. Meanwhile field users of Block 2 equipment and software issued in the late 1980's must either soldier on with it or choose to use their own resources to purchase commercial equipment in the interim.

The other equally serious result of OSD oversight is the potential represented by the ongoing COEA. If the findings of the study are unfavorable, the possibility exists that the MCS program will be terminated in its present form. Given this circumstance, fielding projections are not possible.

Though minuscule considering the massively complex government bureaucracy, the friction between OSD and the Army over MCS does fit the Allison bureaucratic politics model. Governmental action, in this case the slowing and possible termination of an urgently needed Army acquisition, is the resultant of relatively independent actions of separate offices within OSD. From personal conversation with some of the players, none intended to stop the Army from continuing the MCS program. Their actions, influenced by the

dictates of regulation unfortunately may have the result of doing just that.

NOTES

[1] Barbara Starr, "US Army Re-Thinks ATCCS," Janes Defense Weekly 14 November 1992: 26.

[2] William H. Campbell, BG, Integrated Program Summary, Acquisition Strategy Report for MCS (Ft. Momouth, N.J., 10 Nov 1993) 2.

[3] Campbell, 2.

[4] Army Command, Leadership, and Management: Theory and Practice (Carlisle Barracks, PA., 1993-1994) 17-17 -- 17-22.

[5] Required Operational Capabilities Document for Maneuver Control System (Ft. Monroe, VA., 19 July 1982)

[6] Scott R. Gourley, "Tactical Command and Control for the Army," Defense Electronics October 1989: 120.

[7] Gourley, 122.

[8] Campbell, 4.

[9] John M. Deutch, Memorandum to Secretaries of the Military Departments, 2 July 1992, "Designation of Major Defense Acquisition Programs".

[10] Department of Defense Instruction 5000.2, Defense Acquisition Management, Policies and Procedures (Washington: GPO, 23 February 1991) 2-3.

[11] Discussion attended by the author among senior Army representatives and Deputy Assistant Secretary of Defense for Strategic & Tactical Command, Control, Communications during 29 Jan 1993 OSD review of Army Tactical Command and Control System (ATCCS), of which MCS is an integral part.

[12] Campbell, 5.

[13] DODI 5000.2, 3-2.

[14] DODI 5000.2, 3-22.

[15] John M. Deutch, Memorandum for Army Acquisition Executive, 6 April 1993, "Army Tactical Command and Control System, Decision Memorandum."

[16] William G. Lese, Memorandum for Assistant Deputy Chief of Staff for Operations and Plans (Force Development), Headquarters Department of the Army, 25 August 1992, "Maneuver Control System Cost and Operational Effectiveness Analysis."

[17] DODI 5000.2, 4-E-6.

[18] Discussion between officials in OASD-PA&E and the author in November 1992.

[19] Deutch, 6 April 93.

[20] Maneuver Control System Cost and Operational Effectiveness Analysis, 17 Sept 1992, tasking message to US Army Training and Doctrine Command.

[21] Campbell, 5.